

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Claims 1-6 (Cancelled)

7. (Previously Presented) A communication method, comprising:

demultiplexing an input signal into a first plurality of demultiplexed signals;

weighting and combining, in the baseband domain, said first plurality of demultiplexed signals prior to said upconverting;

upconverting said first plurality of demultiplexed signals into a first plurality of upconverted signals;

dividing said first plurality of upconverted signals into a second plurality of divided signals;

weighting said second plurality of divided signals so as to form a second plurality of weighted signals;

combining ones of said second plurality of weighted signals in order to form a third plurality of combined signals; and

transmitting said third plurality of combined signals.

8. (Original) The method of claim 7 wherein said third plurality of combined signals are

transmitted via a corresponding third plurality of antennas.

9. (Original) The method of claim 7 further including converting said first plurality of demultiplexed signals into analog signals.

10. (Cancelled)

11. (Original) The method of claim 7 wherein said second plurality of divided signals are RF signals and wherein said weighting and combining are performed within the RF domain.

12. (Original) The method of claim 8 wherein said first plurality of demultiplexed signals are less in number than said third plurality of antennas.

13. (Original) The method of claim 7 wherein each of said first plurality of upconverted signals is divided into a set of signal components equal in number to said third plurality of combined signals.

Claims 14-18 (Cancelled)

19. (Previously Presented) A communication apparatus, comprising:

a demultiplexer disposed to demultiplex an input signal into a first plurality of demultiplexed signals;

an arrangement capable of weighting and combining, in the baseband domain, said first plurality of demultiplexed signals prior to provision to the upconverter;

an upconverter operative to upconvert said first plurality of demultiplexed signals into a first plurality of upconverted signals;

an arrangement of dividing elements capable of dividing said first plurality of upconverted signals into a second plurality of divided signals;

an arrangement of weighting elements capable of weighting said second plurality of divided signals so as to form a second plurality of weighted signals; and

a combiner arrangement for combining ones of said second plurality of weighted signals in order to form a third plurality of combined signals capable of being transmitted through an antenna structure.

20. (Original) The communication apparatus of claim 19 wherein said third plurality of combined signals are transmitted via a corresponding third plurality of antennas of said antenna structure.

21. (Original) The communication apparatus of claim 19 further including a D/A converter for converting said first plurality of demultiplexed signals into analog signals.

22. (Cancelled).

23. (Original) The communication apparatus of claim 19 wherein said second plurality of divided signals are RF signals and wherein said weighting and combining are performed within the RF domain.

24. (Original) The communication apparatus of claim 20 wherein said first plurality of demultiplexed signals are less in number than said third plurality of antennas

Claims 25-32 (Cancelled)

33. (Previously Presented) A communication apparatus, comprising:

a demultiplexer disposed to demultiplex an input signal into a first plurality of demultiplexed signals;

an arrangement capable of weighting and combining, in the baseband domain, said first plurality of demultiplexed signals prior to provision to the upconverter;

an upconverter operative to upconvert said first plurality of demultiplexed signals into a first plurality of RF signals; and

an RF processing network operative to perform weighting and combining operations in

the RF domain upon said first plurality of RF signals, thereby producing a second plurality of RF signals capable of being transmitted by an antenna structure.

34. (Original) The apparatus of claim 33 wherein said RF processing network includes an arrangement of dividing elements capable of dividing said first plurality of RF signals into a third plurality of divided RF signals.

35. (Original) The apparatus of claim 34 wherein said RF processing network further includes:

an arrangement of weighting elements capable of weighting said third plurality of divided RF signals so as to form a third plurality of weighted RF signals;

a combiner arrangement for combining ones of said third plurality of weighted RF signals in order to form said second plurality of RF signals.

36. (Cancelled).

37. (Previously Presented) A communication apparatus, comprising:

a baseband processing network operative to perform a weighting and combining operation on a plurality of demultiplexed signals prior to provision to the upconverter;

an upconverter operative to upconvert an input signal into an input RF signal; and

an RF processing network operative to perform a weighting operation in the RF domain upon said input RF signal and thereby produce a first plurality of RF signals capable of being transmitted by an antenna structure.

38. (Original) The apparatus of claim 37 wherein said RF processing network includes an arrangement of dividing elements capable of dividing said input RF signal into a first plurality of divided RF signals.

39. (Previously Presented) The apparatus of claim 38 wherein said RF processing network further includes an arrangement of weighting elements capable of weighting said first plurality of divided RF signals so as to form said first plurality of RF signals.

40. (Cancelled)

41. (Original) The apparatus of claim 35 wherein values of said weighting elements are selected to maximize an output signal-to-noise ratio of a receiver disposed to receive said second plurality of RF signals.

42. (Original) The apparatus of claim 39 wherein values of said weighting elements are selected to maximize an output signal-to-noise ratio of a receiver disposed to receive said first

plurality of RF signals.

43. (Cancelled)

44. (Original) The apparatus of claim 19 wherein values of said weighting elements are selected to maximize an output signal-to-noise ratio of a receiver disposed to receive said third plurality of combined signals.